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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/651,599	08/29/2003	Raymond A.. Davis	MICR-155US	9701

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EXAMINER	
LAM, HUNG H	
ART UNIT	PAPER NUMBER
2622	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/651,599	DAVIS, RAYMOND A..	
	Examiner	Art Unit	
	HUNG H. LAM	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04/09/08*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36 and 38-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-35 and 38-41* is/are allowed.

6)☒ Claim(s) *36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08/29/03* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/09/08 and 02/13/08 has been entered.

Response to Amendment

2. The amendments, filed on 02/13/08, have been entered and made of record.

Response to Arguments

3. Applicant's arguments with respect to claim 36 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 36 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim best understood as requiring " **first capturing a scene by the first image module while the second image module is turned off** " and "**second capturing, immediately after the turning on of the second image module, the scene at a higher resolution than the previewed scene using the second image module**".

In contrast, other part of the claim limitations render the claim indefinite because the claim requires "**a second captured scene** when **the second image module has been turned off during the first capturing of the scene**" and "**the second captured scene if the second image module has been turned on during the first capturing of the scene**" (see Applicant's claim 36).

Claim Rejections - 35 USC § 102

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claim 36 is rejected under 35 U.S.C. 102(e) as being anticipated by Kubo (US-6,639,626).

Regarding **claim 36**, (Currently Amended) A method of operating an electronic apparatus having first and second image modules, said method comprising:

first capturing a scene by the first image module while the second image module is turned off (Col. 14, Ln.22-Col. 15, Ln. 15);

previewing the scene on a display (Col. 15, Ln. 1-16);

turning on the second image module after the capturing of the scene by the first image module (Col. 15, Ln. 16-31); and

second capturing, immediately after the turning on of the second image module, the scene at a higher resolution than the previewed scene using the second image module (Col. 15, Ln. 16-40) based on the previewed scene such that fixed pattern noise in the second captured scene when the second image module has been turned off during the first capturing of the scene is reduced relative to the fixed pattern noise in the second captured scene if the second image module has been turned on during the first capturing of the scene (Col. 14, Ln.22-Col. 15, Ln. 31: it is inherent that fixed patent noise in previewed image sensor 63 is reduced or smaller during the preview mode because the size/resolution of the image sensor 63 is smaller than the image sensor 58 which is turned off during preview mode).

Allowable Subject Matter

8. Claims 1-35 and 38-41 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding claim 1, the prior art of record fails to teach or fairly suggest " a dual camera module comprising:

a substrate having circuitry thereon for receiving image data;

a **first image module for capturing first image data of a first orientation of a first scene, and including a first output for transmitting the first image data to the circuitry on the substrate, a second image module for capturing second image data of a second orientation of the first scene, different from the first orientation of the first scene, or a different scene, and including a second output for transmitting the second image data to the circuitry on the substrate; and**

a flex interconnect having a common data line that is shared by the first and second image modules, the common data line being configured to electrically connect the first and second outputs to the circuitry on the substrate, wherein, at the first image module, a portion of the first image data is selectively blocked by tri-stating a connection between the first image module and the common data line during a first time period and at the second image module, a portion of the second image data is selectively blocked by tri-stating a connection between the second image module and the common data line during a second time period, the first and second time periods being consecutive time periods at each respective image module to synchronize the first and second image data received by the circuitry on the substrate to generate a composite image that includes at least one portion of each of the captured first and second image data".

Regarding claim 17, the prior art of record fails to teach or fairly suggest "an electronic apparatus comprising:

a substrate having circuitry thereon for receiving image data; and

a dual camera module connected to said substrate, said dual camera module adapted to capture images, the dual camera module including a first image module adapted to capture a first image in a first direction, and including a first output for transmitting the first captured image to the circuitry on the substrate,

a second image module adapted to capture second image in a second direction, and including a second output for transmitting the second captured image to the circuitry on the substrate, and a common set of data lines that are shared by the first and second image modules, the common set of data lines being configured to electrically connect the first and second outputs to the circuitry on the substrate,

wherein, at the first image module, a portion of the first captured image is selectively blocked by tri-stating a connection between the first image module and the common set of data lines during a first time period and at the second image module, a portion of the second captured image is selectively blocked by tri-stating a connection between the second image module and the common set of data lines during a second time period, the first and second time periods being consecutive time to synchronize the first and second captured images received

by the circuitry on the substrate to generate a composite image that includes at least one portion of each of the captured first and second images".

Regarding claim 31, the prior art of record fails to teach or fairly suggest "an electronic apparatus, comprising:

a substrate,

a first image module adapted to capture a first image with a first orientation in a first direction and mounted on said substrate;

a second image module adapted to capture a second image with a second orientation in either the first direction or in a second direction and mounted on said substrate; and

a screen coupled to the substrate and adapted to display the first and second images captured by said first and second image modules.

wherein at the first image module, a portion of the first captured image is selectively blocked by tri-stating an output thereof during a first time period and at the second image module, a portion of the second captured image is selectively blocked by tri-stating an output thereof during a second time period, the first and second time periods being consecutive time periods to synchronize the first and second captured images received by circuitry on the substrate to

generate a composite image of at least one portion of each of the first and second images on the screen".

Regarding claim 38, the prior art of record fails to teach or fairly suggest "a method of operating an electronic apparatus, the electronic apparatus including first and second image modules having first and second outputs, respectively, said method comprising

capturing first and second scenes, as first and second data streams, using the first image module and the second image module, respectively;

transmitting the first image data stream to circuitry on a substrate via at least one common data line and the first output of the first image module;

transmitting the second image data stream to the circuitry on the substrate via the at least one common data line and the second output of the second image module; and

synchronizing the first and second image data streams received by the circuitry on the substrate by selectively blocking reception of portions of the first and second image data streams transmitted by the first and second outputs, respectively via the at least one common data line to the circuitry on the substrate, to generate a composite image data stream, wherein the synchronizing of the first and second image data includes tri-stating an output of the first image module during a first time period and tri-stating an output of the second image module during a second time period, the first and second time periods

being consecutive time periods such that the first and second captured image data received by the circuitry on the substrate are synchronized to generate the composite image data stream including at least one portion of each of the first and second image data".

Regarding claims 2-16, 18-30, 32-37 and 39-41, the claims are allowed as being dependent of claims 1, 17, 31 and 38, respectively.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Oda (US-2003/0,098,917) discloses a method for reducing the size of the photosensitive cells as well as noise of image signals.

b) Xiaomang (US-2005/0,249,404) discloses that as resolution of the image is increased, noise and jaggy are observed more prominently.

c) Street (US-2003/0,001,222) discloses that high-resolution image sensor arrays data line capacitance tends to be the largest noise source since it is proportional to the very large number of pixels.

d) Meier (US-2006/0,255,144) discloses a tri-state multiplexer for obtaining images from different imaging module.

e) Shirakawa (US-2003/0,117,501) discloses a camera having switching system for switching between back and font image sensor.

f) Stam (US-2004/0,230,358) discloses tri-state input device in order to inquire an image from different image sensors.

g) Kuroda (US-2003/0,036,365) discloses a dual camera module.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG H. LAM whose telephone number is (571)272-7367. The examiner can normally be reached on Monday - Friday 8AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, LIN YE can be reached on 571-272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HL
06/07/08

/Lin Ye/
Supervisory Patent Examiner, Art Unit 2622